INDEX

ATP-ase activity of spermatozoa, 301.

Abstracts of papers presented at the MBL, 289.

Acetylcholine, effect of on starfish cardiac stomach, 157.

Acrosome, studies on, 203, 335.

Action of aqueous extract of beef spleen on cells of sarcoma 37 ascites, 350.

Action spectrum analysis of early development of Drosophila, 289.

Activity of fishes as correlated with gill area, 219.

Activity of quahog and modification by light, 174.

Adhesion, cell, role of surface antigens in, 130, 149.

Adrenalin, effect of on starfish cardiac stomach, 157.

Agglutination of sea urchin sperm, 335.

Agglutination of starfish sperm, 203.

Alanylglycine dipeptidase activity in Ilyanassa eggs, 324.

Alaskan amphipod, influence of environmental factors on metabolism of, 397.

Alga, green, swarming substance stimulating colony formation in, 236.

Alterations in proteins of sea urchin egg homogenates treated with calcium, 364.

Amberson, W. R., J. I. White, H. B. Bensusan, S. Himmelfarb and B. Blankenhorn. A new fibrous muscle protein, 296.

Ames, Bruce N. I. A search for L-spinacine in dogfish liver. II. An investigation of the constituents and function of the hypobranchial gland of certain Muricidae, 323.

Amphibian cells, embryonic, adhesion in, 149.

Amphipod, Alaskan, effect of environmental factors on metabolism of, 397.

Anatomy of starfish cardiac stomach, 157.

Anderson, John Maxwell. Studies on the cardiac stomach of the starfish, Asterias forbesi, 157.

Annual Report of the MBL, 1.

Anthocidaris crassispina, studies on sperm acrosome of, 335.

Antibiotics, effects of on Spisula sperm, 320.

Antibiotics in relation to survival of Spisula ova, 320.

Antibodies, "univalent," 291.

Antigens, surface, role of in cell adhesion, 130, 149.

Antimitotic substance from muscle, 322.

Arbacia egg homogenates, calcium-treated, alterations in proteins of, 364.

Area of gills in marine fishes, comparative study of, 219.

Armstrong, P. B. *See* D. R. Shanklin, 302.

Ascites, sarcoma 37, action of beef spleen extract on cells of, 350.

Asterias amurensis, acrosome reaction in sperm of, 203.

Asterias forbesi, studies on cardiac stomach of, 157.

Asterina pectinfera, acrosome reaction in sperm of, 203.

Astropecten scoparius, acrosome reaction in sperm of, 203.

Autotomy in Uca, 386.

Avery, G. *See* H. Holtzer, 313.

Bang, F. B. Gel-formation in Limulus serum caused by a bacterial toxin, a protective mechanism of the host, 296.

Bay scallop, respiration in, 192.

Bay scallop, water filtration in, 80.

Beams, H. W., T. N. Tahmisian, R. L. Devine and L. E. Roth. Phase-contrast and electron microscope studies on the nebenkern, a mitochondrial body in the spermatids of the grasshopper, 47.

Beef spleen extract, action of on cells of sarcoma 37 ascites, 350.

Behavior of melanophores in Uca, 386.

Bennett, Miriam F. The rhythmic activity of the quahog, Venus mercenaria, and its modification by light, 174.

Bennett, M. F., F. A. Brown, Jr. and H. M. Webb. Fluctuation in the form of the daily rhythm of oxygen consumption in fiddler crabs, 304.

Bennett, M. F. *See* F. A. Brown, Jr., 305; H. M. Webb, 321.

Bensusan, H. B. *See* W. R. Amberson, 296.

Bernstein, G. S. Some physiological properties of frog sperm, 305.

Bioluminescence, observations on, 326.

Bioluminescence of Penilia, 92.

BLANKENHORN, B. *See* W. R. AMBERSON, 296.
Blood of deep sea fishes, oxygen dissociation in, 247.
BOETTIGER, E. G., AND E. FURSHPAN. The response of fibrillar flight muscle to rapid release and stretch, 305.
Branchiopod, distribution of, 92.
BRINTON, C. C., JR., ANNE BUZZELL AND MAX A. LAUFFER. The relationship between the surface structure and the electrophoretic mobility of E. coli bacteria, 290.
BRONSWEIG, RUTH D. *See* JAMES H. GREGG, 312.
BROOKBANK, JOHN W., AND ARTHUR H. WHITELEY. Studies on the urease of the eggs and embryos of the sea urchin, Strongylocentrotus purpuratus, 57.
BROWN, F. A., JR. *See* M. F. BENNETT, 304; H. M. WEBB, 321.
BROWN, F. A., JR., R. O. FREELAND AND M. F. BENNETT. Persistent rhythms of oxygen consumption in carrots and potatoes, 305.
BROWN, F. A., JR., M. I. SANDEEN AND C. L. RALPH. The primary lunar rhythm of O_2-consumption in the fiddler crab, 306.
BROWN, F. A., JR., M. I. SANDEEN AND H. M. WEBB. Solar and lunar rhythms of oxygen consumption in the seaweed, Fucus, 306.
BRYAN, JOHN H. D. Cytological and cytochemical studies of oogenesis of Popilius disjunctus Illiger (Coleoptera—Polyphaga), 64.
BURBANK, ALAN. *See* ALBERT TYLER, 303, 304.
BUZZELL, ANNE. *See* C. C. BRINTON, JR., 290.
BYRD, J. R. *See* ALFRED M. ELLIOTT, 309.

CALCIUM, treatment of sea urchin egg homogenates with, 364.
Calcium deficiency, effect of on sperm acrosome, 335.
Calcium-inititated precipitation of nucleoproteins from homogenates of sea urchin eggs, 298.
Cancer cells, action of beef spleen extract on, 350.
Carbon dioxide, effect of on oygen uptake of Habrobracon larvae, 329.
Carbon dioxide tension in swimbladder of deep sea fishes, 247.
Cardiac stomach of Asterias, studies on, 157.
CASCARANO, JOSEPH. *See* EVELYN K. ROSENBERG, 319.
Cation antagonisms, 302.
Cell adhesion, role of surface antigens in, 130, 149.
Cell division, inhibition of in tumor cells, 350.
CHALFIN, DAVID. Osmotic resistance of dogfish and tautog erythrocytes, 307.
CHALFIN, DAVID. Some properties of mature and young erythrocytes, 294.
CHANG, JOSEPH J. Analysis of the luminescent responses in Mnemiopsis upon stimulation, 296.
Chemoreceptors of flesh fly, effects of temperature on sucrose thresholds of, 360.
CHENEY, RALPH HOLT, AND ROBERTS RUGH. Mitotic inhibition by caffeine and x-rays, 307.
CHIPMAN, WALTER A., AND JEAN G. HOPKINS. Water filtration by the bay scallop, Pecten irradians, as observed with the use of radioactive plankton, 80.
Chlamydomonas, inherited and adapted rutin-resistance in, 293.
Chromatophores, tidal rhythms in behavior of, in autotomized legs of Uca, 386.
Chromosome behavior during conjugation of Tetrahymena, 318.
Ciliates, fibrillar systems of, 106.
Cladoceran, marine, distribution of, 92.
Clams, rhythmic activity of, 174.
CLARK, A. M., AND E. B. HERR, JR. The sensitivity of developing Habrobracon to oxygen, 329.
Cliona, reaggregation of cells of, 130.
Clotting, reversible, in Spirogyra, 317.
CLOWES, G. H. A. *See* M. E. KRAHL, 315.
CLOWES, G. H. A., A. K. KELTCH AND C. P. WALTERS. Uptake of certain hexoses by Arbacia larvae, 307.
CLUGSTON, H. *See* R. RUGH, 289.
COHEN, ADOLPH I., AND SUK KI HONG. Evidence for protein turnover in Amoeba proteus, 297.
COHEN, ADOLPH I. Retention of phosphate label by starving Amoeba proteus, 308.
Coleopteran oogenesis, cytochemical study of, 64.
COLLIER, JACK R. A study of some proteolytic enzymes during the development of Ilyanassa obsoleta, 324.
COLLIER, JACK R. The intracellular localization of the alanylglycine dipeptidase activity in the egg of Ilyanassa obsoleta, 324.
Colony formation in Pediastrum, 236.
Comparisons, serological, among four classes of Mollusca, 411.
Comparative study of gill area in marine fishes, 219.

Competition between ethylene glycol and glycerol, 314.
CONOVER, J. T. *See* M. E. PIERCE, 318.
CORNMAN, IVOR. The contribution of the sperm aster to the first mitotic division, 297.
COUILLARD, PIERRE. The effect of tetrodotoxin and related substances on cell division, 308.
COX, BEVERLEY L. *See* HUBERT L. FRINGS, 360.
Crassostrea virginica, uptake and utilization of phosphate ions from sea water by, 123.
Crustacean, distribution of, 92.
Crustacean, molting of, 433.
Cycle, molting, of spiny lobster, 433.
Cytological studies of Popilius oogenesis, 64.
Cytology of spermatid nebenkern, 47.

DNA content of Popilius oogonial nuclei, 64.
VAN DAM, L. On the respiration in scallops, 192.
VAN DAM, L. *See* P. F. SCHOLANDER, 247.
DAN, JEAN C. Studies on the acrosome. II. Acrosome reaction in starfish spermatozoa, 203.
DAN, JEAN C. Studies on the acrosome. III. Effect of calcium deficiency, 335.
Deep sea fishes, secretion of gases against high pressures in swimbladder of, 247, 260.
Deficiency, calcium, effect of on sperm acrosome, 335.
Desoxyribonucleoprotein, attempt at isolation of, from pneumococcus, 325.
Developing Habrobracon, sensitivity of to oxygen, 329.
Development of Pediastrum, 236.
DEVINE, R. L. *See* H. W. BEAMS, 47.
Dictyostelium discoideum, carbohydrate metabolism of during development, 312.
Dictyostelium discoideum, nitrogen metabolism of, 226.
Diffusion exchange mechanism in deep sea fishes, 247, 260.
DILLER, IRENE COREY, GEORGE F. WATSON AND MARY E. FISHER. Action of aqueous extract of beef spleen on cells of sarcoma 37 ascites, 350.
Dissociation of oxygen in blood of deep sea fishes, 247.
Dissociation of sponge cells, 130.
Distribution of marine cladocerans, 92.
Diurnal rhythm in Uca melanophores, 386.
Diurnal rhythm of quahog activity, 174.

ECDYSIS of spiny lobster, 433.
Ecology of earwigs, 314.
Ecology of Woods Hole intertidal fauna, 314.
Effect of calcium deficiency on sperm acrosome, 335.
Effects of light on temperature selection in speckled trout, 278.
Effects of temperature on sucrose thresholds of flesh fly tarsal chemoreceptors, 360.
Egg cortex reaction in starfish fertilization, 203.
Egg homogenates, sea urchin, calcium-treated, alterations in proteins of, 364.
Eggs, sea urchin, urease of, 57.
Electron microscopy of Arbacia egg homogenates, 364.
Electron microscopy of bumble bee wing muscle, 302.
Electron microscopy of ciliate fibrillar systems, 106.
Electron microscopy of grasshopper spermatid nebenkern, 47.
Electron microscopy of heart sarcosomes, 292.
Electron microscopy of sperm acrosome, 203, 335.
Electrophoretic mobility and surface structure of E. coli, 290.
ELLIOTT, ALFRED M., AND ROBERT E. HAYES. A conjugating strain of Tetrahymena vorax, 309.
ELLIOTT, ALFRED M., AND ROBERT E. HAYES. Tetrahymena from Mexico, Panama and Colombia, 309.
ELLIOTT, ALFRED M., ROBERT E. HAYES AND J. R. BYRD. X-irradiation of sexual strains of Tetrahymena, 309.
Embryonic amphibian cell adhesion studies, 149.
Embryos, sea urchin, urease of, 57.
Environmental factors, influence of on metabolism of Alaskan amphipod, 397.
EPHRUSSI-TAYLOR, H. Attempt at isolation of desoxyribonucleoprotein from pneumococci, 325.
Erythrocytes, dogfish and tautog, osmotic resistance of, 307.
Erythrocytes, properties of, 294.
Evidence for swarming substance in Pediastrum, 236.
Excitation in nerve cells of lobster stretch receptors, 310.
EYZAGUIRRE, C., AND S. W. KUFFLER. Excitation in nerve cells of the lobster stretch receptors, 310.
EYZAGUIRRE, C., AND S. W. KUFFLER. Inhibitory activity in single cell synapses, 310.

FERTILIZATION, role of calcium in, 335.
Fertilization in starfish egg, 203.
Fertilizin agglutination of starfish sperm, adjuvant action of chelating agents in, 317.
Fertilizins of echinoderm eggs, electrophoretic mobilities of, 304.
Fertilizins of echinoderm eggs, sedimentation constants, viscosity and diffusion of, 303.
Fibrillar system of Tetrahymena, 106.
Fiddler crab, tidal rhythm in behavior of melanophores in autotomized legs of, 386.
Filtration by bay scallop, 80.
Fish, effects of light on temperature selection in, 278.
FISHER, KENNETH C. *See* CHARLOTTE M. SULLIVAN, 278.
FISHER, MARY E. *See* IRENE COREY DILLER, 350.
Fishes, marine, comparative study of gill area of, 219.
Fishes, secretion of gases against high pressures in swimbladder of, 247, 260.
Flesh fly, effects of temperature on sucrose thresholds of tarsal chemoreceptors of, 360.
Flukes, bladder, survival of in new habitats, 298.
Formation of colonies in Pediastrum, 236.
FRAENKEL, G. *See* N. C. PANT, 420.
FREELAND, R. O. *See* F. A. BROWN, JR., 305.
FRINGS, HUBERT, AND BEVERLEY L. COX. The effects of temperature on the sucrose thresholds of the tarsal chemo-receptors of the flesh fly, Sarcophaga bullata, 360.
FURSHPAN, E. *See* E. G. BOETTIGER, 305.

GALL, JOSEPH G. Fine structure in the oocyte nuclear membrane, 325.
Gammarus, effect of environmental factors on metabolism of, 397.
Gas tensions in swimbladder of deep sea fishes, 247.
Gases, secretion of against high pressures in swimbladder of deep sea fishes, 247, 260.
Gel-formation in Limulus serum, 296.
Gill area in marine fishes, 219.
Glycolytic enzymes of Arbacia eggs, 315.
GOLDMAN, ALLEN S. An action spectrum analysis of the early development of Drosophila, 289.
GOODCHILD, C. G. Parasites in starved guts in well-nourished hosts, 311.
GOODCHILD, C. G. Reconstitution of the intestinal tract in adult frogs, Rana pipiens, 298.
GOODCHILD, C. G. Survival of bladder flukes in new habitats, 298.
GORDON, E. E., AND MELVIN SPIEGEL. The effect of insulin on the respiration of the sponge, Microciona prolifera, 311.
Gradients of temperature, effects of light on selection of by trout, 278.
Grasshopper, studies on nebenkern in spermatids of, 47.
GRAY, I. E. Comparative study of the gill area of marine fishes, 219.
GREGG, JAMES H., AND RUTH D. BRONSWEIG. The carbohydrate metabolism of the slime mold, Dictyostelium discoideum, during development, 312.
GREGG, JAMES H., ALICE L. HACKNEY AND JEROME O. KRIVANEK. Nitrogen metabolism of the slime mold Dictyostelium discoideum during growth and morphogenesis, 226.
GROSS, MILTON M. *See* RITA GUTTMAN, 312.
GROSS, PAUL R. Alterations in the proteins of sea urchin egg homogenates treated with calcium, 364.
GROSS, PAUL R. Ca-initiated precipitation of nucleoprotein from homogenates of sea urchin eggs, 298.
GROSS, PAUL R., ALVIN M. KAYE, DELBERT E. PHILPOTT AND PETER RIESER. Some observations on "plasma clots" and "fibrin clots," 299.
Growth, nitrogen metabolism of slime mold during, 226.
Growth in Pediastrum, 236.
Growth of spiny lobster, 433.
GUTTMAN, RITA, AND M. M. GROSS. Electrical and mechanical manifestations of muscle activity caused by rapid cooling, 312.

HABROBRACON larvae, sensitivity of to oxygen, 329.
HACKNEY, ALICE L. *See* JAMES H. GREGG, 226.
HASKIN, HAROLD H. *See* L. R. POMEROY, 123.
Hatching in Fundulus heteroclitus, 300.
HAYES, ROBERT E. *See* ALFRED M. ELLIOTT, 309.
Heart beat rate, effect of environmental factors on, in Alaskan amphipod, 397.
HEILBRUNN, L. V. *See* WALTER L. WILSON, 322.
HEILBRUNN, L. V., AND WALTER L. WILSON. Changes in the protoplasm during maturation, 312.
Heliocidaris crassispina, studies on sperm acrosome of, 335.
Hemerythrin, valence changes in oxygenation of, 315.
Hemicentrotus pulcherrimus, studies on acrosome of sperm of, 335.

Hemocyanin, nature of oxygenation reaction in, 300.
HERR, E. B., JR. *See* A. M. CLARK, 329.
Hexoses, uptake of by Arbacia larvae, 307.
HIMMELFARB, S. *See* W. R. AMBERSON, 296.
HINES, MARGARET N. A tidal rhythm in behavior of melanophores in autotomized legs of Uca pugnax, 386.
Histochemistry of starfish cardiac stomach, 157.
Histology of rete mirabile in deep sea fishes, 260.
Histology of starfish cardiac stomach, 157.
HOLTZER, H., G. AVERY AND S. HOLTZER. Some properties of the regenerating limb blastema cells of salamanders, 313.
HOLTZER, S. The inductive role of the spinal cord in tail regeneration in the salamander, 313.
Homogenates, calcium-treated sea urchin egg, alterations in proteins of, 364.
HONG, SUK KI. *See* A. I. COHEN, 297.
HOPKINS, JEAN G. *See* WALTER A. CHIPMAN, 80.
HOWARD, R. S. Comparative ecology and behavior of two sympatric earwigs, Forficula auricularia L. and Anisolabis maritima (Gene), 314.
HOWARD, R. S. Ecology of the intertidal fauna of the Woods Hole region, 314.
HUTTER, O. F., AND K. KOSTIAL. Sodium and the release of acetylcholine from sympathetic ganglia, 292.
HUTTER, O. F., AND W. R. LOEWENSTEIN. Effect of sympathetic stimulation on the slow skeletal muscle system of the frog, 295.
HUTTER, O. F., AND W. R. LOEWENSTEIN. Nature of neuromuscular facilitation by sympathetic stimulation in the frog, 295.
HUXLEY, A. H. *See* W. S. VINCENT, 290.
Hypobranchial gland of Muricidae, constituents and function of, 323.

IMMUNOLOGICAL studies on frog embryo cells, 149.
Immunological studies on Mollusca, 411.
Immunological studies on sponge cells, 130.
Inductive role of spinal cord in salamander tail regeneration, 313.
Influence of environmental factors on metabolism of Alaskan amphipods, 397.
Inhibitory activity in single cell synapses, 310.
Insects, studies on yeast symbionts of, 420.
Intensity of light, effects of on temperature selection by speckled trout, 278.
Ionic distribution and glycolytic factors in Fundulus, 293.

JACOBS, M. H. A case of apparent physiological competition between ethylene glycol and glycerol, 314.
JACOBS, M. H. Some new permeability constants for erythrocytes and their possible significance, 294.
JOHNSON, WILLIAM H. A further study of isometric mechanical responses of the anterior byssus retractor muscle of Mytilus edulis to electrical stimuli and mechanical stretch, 326.

KAYE, ALVIN M. *See* PAUL R. GROSS, 299.
KELTCH, A. K. *See* G. H. A. CLOWES, 307; M. E. KRAHL, 315.
Kinety system of Tetrahymena, 106.
KISCH, BRUNO. Electromicroscopy of the sarcosomes in the heart, 292.
KLOTZ, I. M., R. A. RESNIK AND T. A. KLOTZ. Valence changes in the oxygenation of hemerythrin, 315.
KLOTZ, T. A., AND I. M. KLOTZ. The nature of the oxygenation reaction in hemocyanin, 300.
KOSTIAL, K. *See* O. F. HUTTER, 292.
KRAHL, M. E., A. K. KELTCH, C. P. WALTERS AND G. H. A. CLOWES. Activity of glucose-6-phosphate and 6-phosphogluconate dehydrogenases in relation to glycolytic enzymes of Arbacia eggs, 315.
KRIVANEK, JEROME O. *See* JAMES H. GREGG, 226.
KROG, JOHN. The influence of seasonal environmental changes upon the metabolism, lethal temperature and rate of heart beat of Gammarus limnaeus (Smith) taken from an Alaskan lake, 397.
KUFFLER, S. W. *See* C. EYZAGUIRRE, 310.

LAKE amphipod, Alaskan, effect of environmental factors on metabolism of, 397.
Lamellibranchs, respiration in, 192.
LARIS, P. C. *See* A. K. PARPART, 301.
Larvae, Habrobracon, sensitivity of to oxygen, 329.
Larvae, insect, yeast symbionts of, 420.
Lasioderma serricorne, studies on yeast symbionts of, 420.
LAUFFER, MAX A. *See* C. C. BRINTON, JR., 290.
LEONE, CHARLES A., AND CARLON W. PRYOR. Serological comparisons among four classes of Mollusca, 411.
Lethal temperature of Alaskan amphipod, influence of environmental factors on, 397.

Light, effects of on temperature selection in speckled trout, 278.
Light, modification by, of rhythmic activity of quahog, 174.
LOCHHEAD, JOHN H. On the distribution of a marine cladoceran, Penilia avirostris Dana (Crustacea, Branchiopoda), with a note on its reported bioluminescence, 92.
LOEWENSTEIN, W. R. *See* O. F. HUTTER, 295.
Luminescence in Mnemiopsis, 296.
Lunar cycles in quahog, 174.

MALIGNANT growth, action of beef spleen extract on cells of, 350.
Marine cladoceran, distribution of, 92.
Marine fishes, comparative study of gill area of, 219.
Melanophores, tidal rhythm in behavior of, in Uca, 386.
Melanoplus, studies on nebenkern in spermatids of, 47.
MENKIN, VALY, AND MAX PEPPER. The effect of cortisone and of corticotropin (ACTH) on the rate of cell division, 316.
MENKIN, VALY, AND MAX PEPPER. The effect of cortisone on cellular permeability, 316.
Mesenteric structures, histochemical studies of, 319.
Metabolism of Alaskan amphipod, influence of environmental factors on, 397.
Metabolism, nitrogen, of slime mold, 226.
Metabolism of scallops, 192.
METZ, CHARLES B. The adjuvant action of chelating agents in fertilizin agglutination of starfish sperm, 317.
METZ, CHARLES B. *See* ALBERT TYLER, 321.
METZ, CHARLES B., AND JANE A. WESTFALL. The fibrillar systems of ciliates as revealed by the electron microscope. II. Tetrahymena, 106.
Mice, action of beef spleen extract on tumors of, 350.
MICHAELSON, I. A. *See* V. P. WHITTAKER, 304.
Microciona, cell reaggregation in, 130.
MILKMAN, ROGER. Controlled observation of hatching in Fundulus heteroclitus, 300.
Mitochondrial body in grasshopper spermatid, 47.
Mitosis, effect of cortisone and ACTH on, 316.
Mitotic division, first, contribution of sperm aster to, 297.
Mitotic inhibition by caffeine and x-rays, 307.
Mitotic inhibition in tumor cells, 350.
Modification by light of rhythmic activity of quahog, 174.
MOEWUS, FRANZ. On inherited and adapted rutin-resistance in Chlamydomonas, 293.
Mollusc, scallop, respiration in, 192.
Mollusca, serological comparisons among four classes of, 411.
Molting cycle of spiny lobster, I., 433.
MONER, JOHN G. Evidence for a swarming substance which stimulates colony formation in the development of Pediastrum duplex Meyen, 236.
Morphogenesis, nitrogen metabolism of slime mold during, 226.
MURPHY, W. E. The effect of oxygen on the frequency of x-ray induced mutations in Habrobracon sperm, 301.
Muscle activity, electrical and mechanical manifestations of, caused by rapid cooling 312.
Muscle, anterior byssus retractor, isometric mechanical responses of to electrical stimuli and mechanical stretch, 326.
Muscle, fibrillar flight, response of to rapid release and stretch, 305.
Mutations in Habrobracon, effect of oxygen on frequency of x-ray induced, 301.

NATIVE protein structure and a tetrahedral motif, 323.
Nebenkern of grasshopper spermatid, studies on, 47.
NELSON, LEONARD. Adenosinetriphosphatase activity of spermatozoa, 301.
Neoplastic growth, effect of beef spleen extract on, 350.
Neuromotor apparatus of Tetrahymena, 106.
Neuromuscular facilitation by sympathetic stimulation in the frog, 295.
Nitrogen, effect of on oxygen uptake of Habrobracon larvae, 329.
Nitrogen excretion products of sea urchin eggs and embryos, 57.
Nitrogen metabolism of slime mold, 226.
Nitrogen pressure in swimbladder of deep sea fishes, 247, 260.
Nuclear membrane of oocyte, fine structure of, 325.
Nucleoli of starfish oocytes, dry matter content of, 290.
Nutritional studies on insects and their symbionts, 420.

OOGENESIS of Popilius, cytochemical study of, 64.
OSTERHOUT, W. J. V. Reversible clotting in Spirogyra, 317.

Oysters, ecology of, 318.
Oysters, uptake and utilization of phosphate ions by, 123.
Oxygen consumption of Alaskan amphipod, 397.
Oxygen consumption of scallops, 192.
Oxygen dissociation in blood of deep sea fishes, 247.
Oxygen, sensitivity of developing Habrobracon to, 329.

P-32 incorporation into starfish oocyte nucleoli, 326.
P-32, use of in measuring water filtration by scallops, 80.
PANT, N. C., AND G. FRAENKEL. Studies on the symbiotic yeasts of two insect species, Lasioderma serricorne F. and Stegobium paniceum L., 420.
Panulirus argus, molting cycle of, 000.
Parasites in starved guts in well-nourished hosts, 311.
PARPART, A. K., AND P. C. LARIS. Where is the plasma membrane of the unfertilized egg of Arbacia punctulata, 301.
Parthenogenesis in Penilia, 92.
Pecten, respiration in, 192.
Pecten irradians, water filtration by, 80.
Pediastrum duplex, swarming substance stimulating colony formation in, 236.
Pellicle morphology of Tetrahymena, 106.
Penilia avirostris, distribution of, 92.
PEPPER, MAX. *See* VALY MENKIN, 316.
Permeability of cells, effects of cortisone on, 316.
Permeability constants of erythrocytes, 294.
Phase contrast microscopy of grasshopper spermatid nebenkern, 47.
PHILPOTT, DELBERT, E., Electron microscopic investigation of bumble bee wing muscle, 302.
PHILPOTT, DELBERT E. *See* PAUL R. GROSS, 299.
Phosphate ions, uptake and utilization of by oyster, 123.
Phosphate label, retention of by starving amoeba, 308.
Photoperiodism of quahog activity, 174.
PIERCE, MADELENE E., AND J. T. CONOVER. A study of the growth of oysters under different ecological conditions in Great Pond, 318.
Plankton, marine, distribution of Penilia in, 92.
Plankton, radioactive, use of in measuring water filtration by scallop, 80.
"Plasma clots" and "fibrin clots," observations on, 299.
Plasma membrane of unfertilized Arbacia egg, localization of, 301.
Plasminogen, human, activation of by streptokinase, 291.
Pluteus, sea urchin, urease activity of, 57.
Polyphaga, cytochemical study of oogenesis in, 64.
POMEROY, L. R., AND H. H. HASKIN. The uptake and utilization of phosphate ions from sea water by the American oyster, Crassostrea virginica, 123.
Popilius disjunctus, cytochemical study of oogenesis of, 64.
Pressures, high, secretion of gases against, in swimbladder of deep sea fishes, 247, 260.
Protein, new fibrous muscle, 296.
Protein turnover in Amoeba proteus, 297.
Proteins, alterations in, of sea urchin egg homogenates treated with calcium, 364.
Proteolytic enzymes in developing Ilyanassa, 324.
Proteolytic enzymes in sea urchin egg homogenates treated with calcium, 364
Protoplasm, changes in during maturation, 312.
PRYOR, CARLON W. *See* CHARLES A. LEONE, 411.
Pseudocentrotus depressus, studies on sperm acrosome of, 335.
Purine metabolism in sea urchin eggs and embryos, 57.

QUAHOG, rhythmic activity of, 174.

RADIOACTIVE plankton, use of in measuring water filtration by scallop, 80.
Radioactivity, loss of from sections during histological processing, 321.
Radiophosphorus, uptake of by oyster, 123.
Radiosensitivity in relation to mouse estrus cycle, 289.
RALPH, C. L. Rhythms of oxygen consumption in the earthworm Lumbricus terrestris, 318.
RALPH, C. L. *See* F. A. BROWN, JR., 306.
Rana pipiens embryonic cells, adhesion in, 149.
RAY, CHARLES, JR. Chromosome behavior during conjugation of mating types I and II of variety 1 of Tetrahymena, 318.
Reaction of acrosome of starfish sperm, 203.
Reaggregation of sponge cells, 130.
Reconstitution of intestinal tract in adult frogs, 298.
Regenerating limb blastema of salamanders, properties of, 313.
RESNIK, R. A. *See* I. M. KLOTZ, 315.

Respiration in scallops, 192.
Respiration of Microciona, effect of insulin on, 311.
Respiratory lamellae in marine fishes, 219.
Rete mirabile of deep sea fishes, 260.
Retractor system of starfish stomach, 157.
Rhythm, tidal, in behavior of melanophores in Uca, 386.
Rhythmic activity of quahog and its modification by light, 174.
Rhythms of oxygen consumption in carrots and potatoes, 305.
Rhythms of oxygen consumption in earthworm, 318.
Rhythms of oxygen consumption in fiddler crab, 306.
Rhythms of oxygen consumpton in fiddler crabs, fluctuation in, 321.
Rhythms of oxygen consumption in fiddler crab, induction of persistent modification in, 321.
Rhythms of oxygen consumption in seaweed, Fucus, 306.
RIESER, PETER. *See* PAUL R. GROSS, 299.
Role of surface antigens in cell adhesion, 130, 149.
Root effect in oxygen dissociation in blood of deep sea fishes, 247, 260.
ROSENBERG, E. K., AND J. CASCARANO. Histochemical studies of mesenteric structures, 319.
ROTH, L. E. *See* H. W. BEAMS, 47.
RUGH, ROBERTS. The effect of various levels of x-irradiation on the gametes and early embryos of Fundulus heteroclitus, 319.
RUGH, ROBERTS. *See* R. H. CHENEY, 307.
RUGH, R., AND H. CLUGSTON. Radiosensitivity with respect to the estrus cycle in the mouse, 289.

SALVELINUS fontinalis, effects of light on temperature selection in, 278.
SANDEEN, M. I. *See* F. A. BROWN, JR., 306.
Sarcoma 37 ascites, action of beef spleen extract on cells of, 350.
Sarcophaga bullata, effects of temperature on sucrose thresholds of tarsal chemoreceptors of, 360.
Scallop, bay, water filtration by, 80.
Scallops, respiration in, 192.
SCHECHTER, VICTOR. Antibiotics in relation to the survival of Spisula ova, 320.
SCHECHTER, VICTOR. The effect of antibiotics upon Spisula sperm, 320.
SCHOLANDER, P. F. Secretion of gases against high pressures in the swimbladder of deep sea fishes. II. The rete mirabile, 260.
SCHOLANDER, P. F., AND L. VAN DAM. Secretion of gases against high pressures in the swimbladder of deep sea fishes. I. Oxygen dissociation in the blood, 247.
Sea urchin egg homogenates, calcium-treated, alterations in proteins of, 364.
Sea urchin sperm acrosome, studies on, 335.
Sea urchin, studies on urease in eggs and embryos of, 57.
Sea water, uptake of phosphate ions from by oysters, 123.
Seasonal environmental factors, influence of on metabolism of Alaskan amphipods, 397.
Secretion of gases in deep sea fishes, I., 247.
Secretion of gases in deep sea fishes, II., 260.
Selection of temperature by speckled trout, 278.
Sensitivity of developing Habrobracon to oxygen, 329.
Serological comparisons among four classes of Mollusca, 411.
SHANKLIN, D. R. Evidence for active transport of water in Fundulus embryos, 320.
SHANKLIN, D. R. Ionic distribution and glycolytic factors in Fundulus, 293.
SHANKLIN, D. R., AND P. B. ARMSTRONG. Cation antagonism, 302.
SHERRY, SOL. *See* WALTER TROLL, 291.
Silver line system of Tetrahymena, 106.
Slime mold, nitrogen metabolism of, 226.
Sodium and release of acetylcholine from sympathetic ganglia, 292.
Speckled trout, effects of light on temperature selection in, 278.
Sperm acrosome, studies on, 203, 335.
Sperm, frog, physiological properties of, 305.
Spermatid, grasshopper, nebenkern in, 47.
Spermatozoa, starfish, acrosome reaction in, 203.
SPIEGEL, MELVIN. The role of specific surface antigens in cell adhesion. Part I. The reaggregation of sponge cells, 130.
SPIEGEL, MELVIN. The role of specific surface antigens in cell adhesion. Part II. Studies on embryonic amphibian cells, 149.
SPIEGEL, MELVIN. *See* E. E. GORDON, 311.
L-spinacine, search for in dogfish liver, 323.
Spiny lobster, molting cycle of, 433.
Spleen extract, action of on cells of sarcoma 37 ascites, 350.
Sponge cells, reaggregation of, 130.
Starfish, studies on cardiac stomach of, 157.
Starfish sperm, acrosome reaction in, 203.
Stegobium paniceum, studies on yeast symbionts of, 420.
STEINBERG, MALCOLM. Cell movement and the axial gradient in Tubularia, 303.

Stimulation of colony formation in Pediastrum, 236.
Stomach, cardiac, of starfish, studies on, 157.
STREHLER, BERNARD L. Some observations on bioluminescence, 326.
Strongylocentrotus, urease of eggs and embryos of, 57.
Strongylocentrotus, studies on acrosome of sperm of, 335.
Studies on acrosome. II., 203.
Studies on acrosome. III., 335.
Studies on cardiac stomach of starfish, 157.
Studies on embryonic amphibian cell adhesion, 149.
Studies on grasshopper spermatid nebenkern, 47.
Studies on urease of eggs and embryos of sea urchin, 57.
Studies on yeast symbionts of insects, 420.
Study of gill areas in marine fishes, 219.
Sucrose thresholds of flesh fly tarsal chemoreceptors, effects of temperature on, 360.
SULLIVAN, CHARLOTTE M., AND K. C. FISHER. The effects of light on temperature selection in speckled trout Salvelinus fontinalis, 278.
Surface antigens, role of in cell adhesion, 130, 149.
Surface precipitation reaction in calcium-treated Arbacia egg homogenates, 364.
Swarming substance in Pediastrum, 236.
Swimbladder of deep sea fishes, secretion of gases against high pressures in, 247, 260.
Symbiotic yeasts, studies on, 420.
Sympathetic stimulation, effect of on slow skeletal muscle system of frog, 295.

TAHMISIAN, T. N. *See* H. W. BEAMS, 47.
Tarsal chemoreceptors of flesh fly, effects of temperature on sucrose threshold of, 360.
Taxonomy of Mollusca, 411.
Teleost fishes, comparative study of gill area of, 219.
Temperature, effects of on sucrose threshold of flesh fly tarsal chemoreceptors, 360.
Temperature, lethal, of Alaskan amphipod, influence of environmental factors on, 397.
Temperature selection in speckled trout, effects of light on, 278.
Tetrahymena, conjugating strain of, 309.
Tetrahymena, electron microscopy of fibrillar system of, 106.
Tetrahymena from Central and South America, 309.
Tetrazolium salt, inhibition of intermedin-induced darkening of frog skin by, 323.
Tetrodotoxin, effect of on cell division, 308.
Thresholds, sucrose, of flesh fly, effects of temperature on, 360.
Tidal rhythm in behavior of melanophores in Uca, 386.
Tidal rhythms in quahog, 174.
TRAVIS, DOROTHY F. The molting cycle of the spiny lobster, Panulirus argus. I. Molting and growth in laboratory-maintained individuals, 433.
Treatment of sea urchin egg homogenates with calcium, 364.
Triton alpestris, embryonic cells of, 149.
TROLL, WALTER, AND SOL SHERRY. The activation of human plasminogen by streptokinase, 291.
Trout, speckled, effect of light on temperature selection in, 278.
Trypsin, action of on echinoderm eggs in homologous and cross fertilization, 321.
Tubularia, cell movement and axial gradient in, 303.
Tumor cells, action of beef spleen extract on, 350.
TYLER, ALBERT. "Univalent" antibodies, 291.
TYLER, ALBERT, AND CHARLES B. METZ. The action of trypsin on Arbacia and Echinarachnius eggs in homologous and cross fertilization, 321.
TYLER, ALBERT, ALAN BURBANK AND JAMES S. TYLER. The electrophoretic mobilities of the fertilizins of Arbacia and Echinarachnius, 304.
TYLER, ALBERT, ALAN BURBANK AND JAMES S. TYLER. Sedimentation constants, viscosity and diffusion of the fertilizins of Arbacia and Echinarachnius, 303.

UCA pugnax, tidal rhythms in behavior of melanophores in autotomized legs of, 386.
Ultrastructure of grasshopper spermatid nebenkern, 47.
Ultraviolet radiation of Drosophila eggs, 289.
Uptake and utilization of phosphorus by oyster, 123.
Urease of sea urchin eggs and embryos, 57.
Urocanylcholine, studies on, 304.
Utilization of phosphate ions by oyster, 123.

VENUS mercenaria, rhythmic activity of, 174.
VINCENT, W. S. Loss of radioactivity from tissue sections during histological processing, 321.
VINCENT, W. S. P-32 incorporation into starfish oocyte nucleoli, 326.

VINCENT, W. S., AND A. H. HUXLEY. The dry matter content of starfish oocyte nucleoli, 290.
Vitamin requirements of insects, 420.

WALTERS, C. P. *See* G. H. A. CLOWES, 307; M. E. KRAHL, 315.
Water filtration by bay scallops, 80.
Water transport in Fundulus embryos, 320.
Water uptake in molting spiny lobsters, 433.
WATSON, GEORGE F. *See* IRENE COREY DILLER, 350.
WEBB, H. M. *See* F. A. BROWN, JR., 306; M. F. BENNETT, 304.
WEBB, H. M., M. F. BENNETT AND F. A. BROWN, JR. Induction of a persistent modification in the daily rhythm of oxygen consumption in fiddler crabs, 321.
WESTFALL, JANE A. *See* CHARLES B. METZ, 106.
WHITE, J. I. *See* W. R. AMBERSON, 296.
WHITELEY, ARTHUR H. *See* JOHN W. BROOKBANK, 57.
WHITTAKER, V. P., AND I. A. MICHAELSON. Studies on urocanylcholine, 304.
WICHTERMAN, RALPH. Variations in x-radiation sensitivity of different stages of growth in Paramecium, 322.
WILSON, WALTER L. *See* L. V. HEILBRUNN, 312.
WILSON, WALTER L., AND L. V. HEILBRUNN. An antimitotic substance from muscle, 322.
WRIGHT, PAUL A. Inhibition of intermedin-induced darkening of frog skin (Rana pipiens) by tetrazolium salt, 323.
WRINCH, DOROTHY. Native protein structure and a tetrahedral motif, 323.

X-IRRADIATION of gametes and embryos of Fundulus, 319.
X-irradiation sensitivity of Paramecium growth stages, variations in, 322.
X-irradiation of sexual strains of Tetrahymena, 309.

YEASTS, symbiotic, studies on, 420.